

What we claim is:

1. A mobile node supporting router comprising:

a home link interface connected to a home link of a mobile node;  
and

5 a foreign link interface connected to a foreign link of the node;  
the foreign link interface having an encapsulating cache for  
storing binding information of the node and a processor for  
encapsulating a packet addressed to the node with a care-of address  
included in the binding information.

10 2. The mobile node supporting router as claimed in claim 1 wherein  
the binding information comprises information associating a home  
address of the node with a care-of address at a time of moving.

15 3. The mobile node supporting router as claimed in claim 2 wherein  
the binding information associates an output interface which outputs  
the encapsulated packet with the care-of address.

4. The mobile node supporting router as claimed in claim 1 wherein  
the binding information includes a lifetime of the binding information  
itself.

20 5. The mobile node supporting router as claimed in claim 1 wherein  
the processor transmits the encapsulated packet to an output interface  
through a packet transfer route.

6. The mobile node supporting router as claimed in claim 3 wherein  
the processor provides the encapsulated packet to the output interface.

25 7. The mobile node supporting router as claimed in claim 1 wherein  
when receiving a binding demand packet from the node, the processor  
stores the binding information included in the binding demand packet  
in the encapsulating cache.

30 8. The mobile node supporting router as claimed in claim 7 wherein  
the processor provides a binding reply packet for the binding demand  
packet to an output interface through a packet transfer route.

9. The mobile node supporting router as claimed in claim 7 wherein

the encapsulating cache stores an output interface for outputting the binding reply packet in association with a care-of address of the node within the binding information, and

the processor provides the binding reply packet to the output interface based on the binding information.

10. The mobile node supporting router as claimed in claim 1 wherein when the encapsulating cache does not store the binding information of the node upon receiving a packet associated with the node, the processor acquires the binding information from a home agent.

11. The mobile node supporting router as claimed in claim 10 wherein the packet associated with the node comprises a packet addressed to the node.

12. The mobile node supporting router as claimed in claim 10 wherein the packet associated with the node comprises a binding demand packet from the node.

13. The mobile node supporting router as claimed in claim 10 wherein the processor notifies the home agent, by a request message, that the processor does not store the binding information.

14. The mobile node supporting router as claimed in claim 10 wherein the processor notifies the home agent, through a packet transfer route by assigning to the packet an identifier of a foreign link interface to which the processor itself belongs, that the processor does not store the binding information.

15. The mobile node supporting router as claimed in claim 10 wherein the processor acquires the binding information from the home agent through an in-device control route.

16. The mobile node supporting router as claimed in claim 10 wherein the processor acquires necessary information from a routing table through an in-device control route.

17. The mobile node supporting router as claimed in claim 10 wherein when receiving a notification that the encapsulating cache

does not store the binding information, the home agent notifies necessary information to the processor from a binding cache held by the home agent itself.

18. The mobile node supporting router as claimed in claim 17 wherein the home agent notifies the binding information by a reply message through a packet transfer route.

19. The mobile node supporting router as claimed in claim 17 wherein the home agent notifies the binding information through an in-device control route.

20. The mobile node supporting router as claimed in claim 10 wherein when the notification is performed by an identifier of an output interface, the home agent notifies the binding information to which an identifier of an output interface to which the home agent itself belongs is assigned.

21. The mobile node supporting router as claimed in claim 17 wherein the home agent preliminarily stores a foreign link interface to which the notification has been transmitted, so that upon receiving a binding demand packet from the node, the home agent transmits binding information included in the binding demand packet to the stored foreign link interface.

22. A mobile node supporting router comprising:  
a home link interface connected to a home link of a mobile node;  
and

a foreign link interface connected to a foreign link of the node;  
the foreign link interface including a processor for exchanging mobile IP messages instead of a home agent of the node and a cache for storing binding information of the node included in the mobile IP message.

23. The mobile node supporting router as claimed in claim 22 wherein the mobile IP message comprises a binding demand packet received from the node and a binding reply packet which responds to

